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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,651	01/22/2004	John Whcat	8540G-000242	5293

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EXAMINER	
MARTIN, ANGELA J	

ART UNIT	PAPER NUMBER
1745	

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08/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/762,651	WHEAT ET AL.	
	Examiner	Art Unit	
	Angela J. Martin	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 17-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8, 17-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is responsive to the Amendment filed on June 8, 2007. The Applicant has amended claim 1 and has canceled non-elected claims 9-16. However, the rejection is made final for the following reasons of record.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5, 6, 17, 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Kato et al., U.S. Pat. Application Pub. 2004/0053092 A1.

Rejection of claims 1-3, 5, 6 drawn to a fuel cell stack antifreeze system; claims 17, 18 drawn to a fuel cell system.

Kato et al., teach a fuel cell stack antifreeze system (0008) that purges a plurality of fuel cell stacks connected in parallel (Fig. 1), comprising: a compressor that supplies pressurized cathode gas to each fuel cell stack of said plurality of fuel cell stacks (0049); and a controller that deactivates a first group of one or more of said plurality of fuel cell stacks and maintains operation of a second group of one or more of said

plurality of fuel cell stacks (abstract; 0010), wherein said second group powers said compressor and said compressor purges excess fluid from said first group using said pressurized cathode gas (0022). The fuel cell stack antifreeze system of claim 1 wherein said controller deactivates said second group after purging said excess fluid from said first group (0016). The fuel cell stack antifreeze system of claim 2 wherein said controller activates said first group, wherein said first group is used to heat said second group (0025; 0056). The fuel cell stack antifreeze system of claim 3 further comprising a heating system including an electrical heater associated with each of said plurality of fuel cell stacks, wherein said first group powers said electrical heater that heats said second group (0056). The fuel cell stack antifreeze system of claim 1 further comprising an operator input that selectively generates a shutdown signal, wherein said controller deactivates said first group in response to said shutdown signal (0026). A fuel cell system, comprising: a plurality of fuel cell stacks connected in parallel (Fig. 1); an input device that generates one of a shutdown signal and a load demand signal (0026); a compressor that supplies pressurized cathode gas to each of said plurality of fuel cell stacks (0049); and a controller that deactivates a first group of one or more of said plurality of fuel cell stacks and that maintains operation of a second group of one or more of said plurality of fuel cell stacks based on said one of said shutdown signal and said load demand signal (abstract; 0010), wherein said second group powers said compressor and said compressor purges excess fluid from said first group using said pressurized cathode gas (0022). The fuel cell system of claim 17 wherein said controller deactivates said second group after purging said excess fluid from said first group

(0022). The fuel cell system of claim 19 further comprising a heating system including an electrical heater associated with each of said plurality of fuel cell stacks, wherein said first group powers said electrical heater that heats said second group (0056).

Thus, the claims are anticipated.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3, 4, 19, 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Roberts et al., U.S. Pat. Applicn. Pub. 2001/0055707 A1.

Roberts et al., teach a fuel cell stack antifreeze system (0054; 0057) that purges a plurality of fuel cell stacks connected in parallel (Fig. 2), comprising: a compressor that supplies pressurized cathode gas to each of said plurality of fuel cell stacks (0049); and a controller that deactivates a first group of one or more of said plurality of fuel cell stacks and maintains operation of a second group of one or more of said plurality of fuel cell stacks (abstract; 0015; 0020), wherein said second group powers said compressor and said compressor purges excess fluid from said first group (0054;0055). The fuel cell stack antifreeze system of claim 3 further comprising a coolant system that circulates a heat transfer fluid through said plurality of fuel cell stacks, wherein waste heat from said first group is transferred via said heat transfer fluid to said second group (0043). The fuel cell system of claim 18 wherein said controller activates said first group in response to a start-up signal generated by said input device, wherein said first group is used to

heat said second group (0057). The fuel cell system of claim 19 further comprising a coolant system that circulates a heat transfer fluid through said plurality of fuel cell stacks, wherein waste heat from said first group is transferred via said heat transfer fluid to said second group (0043).

Thus, the claims are anticipated.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 7, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al., U.S. Pat. Application Pub. 2004/0053092 A1.

Kato et al., teach a fuel cell stack as described above.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because one of ordinary skill would provide a number of fuel cell stacks required to provide a desired load command. In addition, the controller can be programmed to selectively generate a reduced load demand, so that the controller deactivates a group of fuel cells in response to the reduced load demand.

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts et al., U.S. Pat. Applicn. Pub. 2001/0055707 A1.

Roberts et al., teach a fuel cell stack as described above.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because one of ordinary skill would provide a number of fuel cell stacks required to provide a desired load command. In addition, the controller can be programmed to selectively generate a reduced load demand, so that the controller deactivates a group of fuel cells in response to the reduced load demand.

8. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts et al., U.S. Pat. Applicn. Pub. 2001/0055707 A1, in view of Kato et al., U.S. Pat. Application Pub. 2004/0053092 A1.

Roberts et al., U.S. Pat. Applicn. Pub. 2001/0055707 A1, teach a fuel cell stack as described above.

Kato et al., U.S. Pat. Application Pub. 2004/0053092 A1, teach a fuel cell stack as described above.

Thus, one of ordinary skill in the art would have been motivated to insert the teachings of Roberts et al., into the teachings of Kato et al., because the heating system of Kato et al., would provide "that the fuel cell units disposed near the ends of the fuel cell stack are warmed up; therefore, decrease in the temperature of the end fuel cell units can be prevented when the power generation in the fuel cell stack is stopped." (Kato et al, (0011).

Response to Arguments

9. Applicant's arguments filed 6/8/07 have been fully considered but they are not persuasive. Applicant argues, "Kato publication also does not teach a controller that serves to deactivate only a first group of a plurality of fuel cell stacks while maintaining operation of a second group of the fuel cell stacks. The Kato publication's control unit instead controls a single fuel cell stack... The Roberts publication does not describe a controller that serves to deactivate only a first group of a plurality of fuel cell stacks while maintaining operation of a second group of the fuel cell stacks. The Roberts controller, on receiving instructions to shut down the system, opens the electrical circuit switch, closes the reactant supply valves, and opens the purge fluid valves. Paragraph [0045]. The Roberts publication does not disclose a controller that deactivates only a first group of a plurality of fuel cell stacks while maintaining operation of a second group of the fuel cell stacks." However, the Kato reference and the Roberts reference both comprise controllers, which can be programmed or adapted to control any function within the fuel cell system. It would take minimal manipulation of the controller to provide the same functions as claimed.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJM

PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER